

## **Amendments to the Claims**

Please cancel claims 1-31 without prejudice, and add new claims 32-62, as follows:

**Claims 1-31 (cancelled).**

**Claim 32 (new).** Apparatus for providing optical radiation comprising:

a pump source and at least one first amplifying waveguide, and wherein the first amplifying waveguide emits optical radiation in excess of 1400nm when pumped by the pump source.

**Claim 33 (new).** Apparatus according to claim 32 wherein:

the pump source includes a plurality of laser diodes and at least one second amplifying waveguide;

the first amplifying waveguide is pumped by the second amplifying waveguide, and the second amplifying waveguide is pumped by the laser diodes; and

the second amplifying waveguide is configured to improve the beam quality of radiation emitted by the laser diodes.

**Claim 34 (new).** Apparatus according to claim 33 wherein the pump source includes at least one multimode beam combiner for combining optical radiation emitted by the laser diodes.

**Claim 35 (new).** Apparatus according to claim 33 further comprising at least one first beam combiner configured to combine optical radiation emitted by the second amplifying waveguides.

1 Claim 36 (new). Apparatus according to claim 33 wherein the first amplifying  
2 waveguide comprises a first optical fibre.

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4 Claim 37 (new). Apparatus according to claim 36 wherein the first optical fibre  
5 comprises a region containing a first rare-earth dopant.

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7 Claim 38 (new). Apparatus according to claim 37 wherein the first rare earth  
8 dopant is selected from the group consisting of erbium, holmium and thulium.

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10 Claim 39 (new). Apparatus according to claim 38 wherein the first rare earth  
11 dopant is co-doped with ytterbium.

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13 Claim 40 (new). Apparatus according to claim 37 wherein the first rare-earth  
14 dopant is pumped substantially at the peak of its absorption band.

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16 Claim 41 (new). Apparatus according to claim 36 wherein the first optical fibre  
17 comprises a core and a cladding.

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19 Claim 42 (new). Apparatus according to claim 36 wherein the first optical fibre is  
20 single mode.

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22 Claim 43 (new). Apparatus according to claim 36 wherein the first optical fibre is  
23 multi mode.

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25 Claim 44 (new). Apparatus according to claim 36 wherein the first optical fibre  
comprises a plurality of cores.

1 Claim 45 (new). Apparatus according claim 33 wherein the second amplifying  
2 waveguide comprises a second optical fibre.

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4 Claim 46 (new). Apparatus according to claim 45 wherein the second optical  
5 fibre comprises a region containing a second rare-earth dopant.

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7 Claim 47 (new). Apparatus according to claim 45 wherein the second optical  
8 fibre comprises a core and a cladding.

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10 Claim 48 (new). Apparatus according to claim 45 further comprising a grating  
11 written into at least one of the core and the cladding.

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13 Claim 49 (new). Apparatus according to claim 45 wherein the second optical  
14 fibre is single mode.

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16 Claim 50 (new). Apparatus according to claim 45 wherein the second optical  
17 fibre is multi mode.

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19 Claim 51 (new). Apparatus according to claim 45 wherein the second optical  
20 fibre comprises a plurality of cores.

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22 Claim 52 (new). Apparatus according to claim 33 further comprising means to  
23 change the wavelength of radiation emitted by the second amplifying waveguide.

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25 (Continued on next page.)

1 Claim 53 (new). Apparatus according to claim 52 wherein the means to change  
2 the wavelength of radiation emitted by the second amplifying waveguide is one of a  
3 wavelength tuneable reflector, an optical switch, a source of optical radiation, or a  
4 tuneable grating.

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6 Claim 54 (new). Apparatus according to claim 53 wherein the tuneable grating is  
7 one of thermally tuned or tuned by an actuator.

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9 Claim 55 (new). Apparatus according to claim 33 wherein the apparatus is  
10 configured such that the optical radiation emitted by the first amplifying waveguide  
11 has a higher brightness when the second amplifying optical fibre emits at a first  
12 wavelength.

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14 Claim 56 (new). Apparatus according to claim 32 wherein the pump supplies  
15 pump radiation for in-band pumping the first amplifying waveguide.

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17 Claim 57 (new). Apparatus according to claim 56 wherein both the pump  
18 wavelength and the wavelength of the optical radiation are between 1400nm and  
19 2500nm.

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21 Claim 58 (new). Apparatus according to claim 32 wherein the pump source  
22 comprises a broad stripe laser diode.

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24 Claim 59 (new). Apparatus according to claim 32 wherein the optical radiation is  
25 coupled to a scanner.

1 Claim 60 (new). Apparatus according to claim 59 further comprising a controller  
2 configured to synchronize the optical radiation with the scanner.

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4 Claim 61 (new). Apparatus according to claim 32, wherein the apparatus is in the  
5 form of an amplifier, a laser, a master oscillator power amplifier, a Q-switched laser,  
6 a source of amplified spontaneous emission, or a continuous wave laser.

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8 Claim 62 (new). Apparatus according to claim 32 wherein the apparatus is in the  
9 form of a laser for material processing.

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11 (End of amendments.)

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